

EET 272 Quiz 2 Review

Chapters 23-27
Across The Line, XL, R,
Autotransformer and Y-Δ Starting

1

1

What is the difference between Open and Closed Transitioning? (Think of the applied voltage)

...

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2

What is the difference between Open and Closed Transitioning? (Think of the applied voltage)

In Closed Transitioning the motor is never disconnected from power when starting, in Open Transitioning the Motor will coast for a short time between stages.

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If Resistor or Inductor (R/XL) Starting is used to start a motor, how are they removed at the right time? Specifically, what do the contacts do?

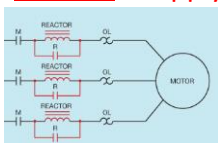
...

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If Resistor or Inductor (R/XL) Starting is used to start a motor, how are they removed at the right time? Specifically, what do the contacts do?

They are placed in series with the motor and shorted to apply full power



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What is “Across the Line” Starting?

...

On what kinds of motors is it used?

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6

What is "Across the Line" Starting?

Applying full power at start
(AKA DOL or Direct-On-Line)

On what kinds of motors is it used?

Small AC and DC

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Why is arcing in AC not as bad as DC?

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Why is arcing in AC not as bad as
DC?

AC Voltage and Current has Zero
Crossings

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What advantage does XL starting offer,
other than reduced heat (Inductive
Principle)? ...

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What advantage does XL starting offer,
other than reduced heat (Inductive
Principle)?

Inductors oppose changes in current
and inrush is a large change in current.

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Why might Across the Line Starting not
be a good option? Think of the Power-
System.

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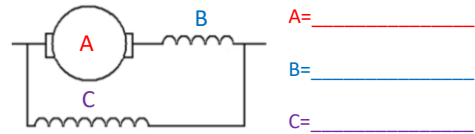
Why might Across the Line Starting not be a good option? Think of the Power-System.

It can Over-Load (Brown-Out) the power.

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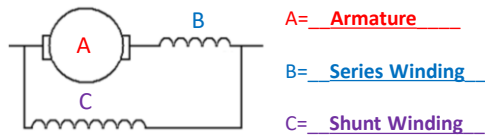
What are the parts of this motor?



14

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What are the parts of this motor?



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What is the main advantage of a series-connected motor?

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What is the main advantage of a **series-connected** motor?

**High torque at low speeds
(Excellent Starting Torque)**

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What is the main advantage of a shunt-connected motor?

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What is the main advantage of a
shunt-connected motor?

**Excellent Speed Control The same
speed no-load to full load**

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What is the danger of a series-
connected motor?

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What is the danger of a series-
connected motor?

No Speed Control

Will over-speed to death with no load

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How does Autotransformer Starting
differ from R/XL Starting? (What is
reduced?)

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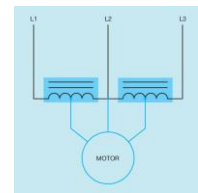
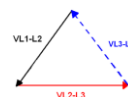
How does Autotransformer
Starting differ from R/XL Starting?
(What is reduced?)

The ATX Reduces the Voltage

23

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Frequently in ATX starting only 2
Transformers are used for a 3-Phase
motor. What is this configuration
called?

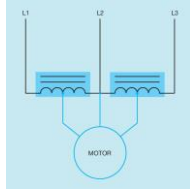


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24

Frequently in ATX starting only 2 Transformers are used for a 3-Phase motor. What is this configuration called?

Open Delta



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What are the 2 conditions of Y-Δ starting? (Leads and design)

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What are the 2 conditions of Y-Δ starting? (Leads and design)

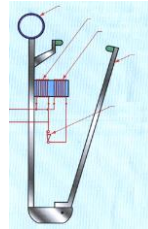
1) Access to all leads

2) The motor can be run in Delta or Wye connections (designed for it).

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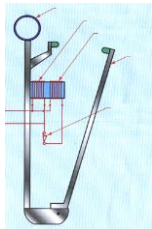
What electromagnetic “Arc-Stretcher” may be used to help reduce a DC arc across contacts? (Think of a birthday cake)



28

28

What electromagnetic “Arc-Stretcher” may be used to help reduce a DC arc across contacts? (Think of a birthday cake)



Blow-Out Coil

29

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How is the direction of a 3-Phase Motor reversed?

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How is the direction of a 3-Phase Motor reversed?

Swap any 2 of the 3 "T" Leads

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When a motor is first started, or has a locked-rotor, how much current can it draw?

...

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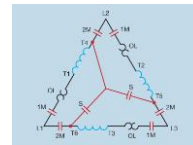
When a motor is first started, or has a locked-rotor, how much current can it draw?

**5-8 times the FLA
("Full-Load Amps,"
AKA: "FLA" or "The Nameplate
Current")**

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What is the advantage of starting a motor in Wye versus Delta configuration? ...

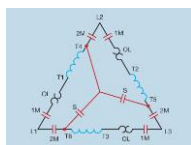


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What is the advantage of starting a motor in Wye versus Delta configuration?

**Wye LINE Current is 1/3 of Delta
Current**



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